Museum at Washington rather than attempt any original investigations of their own, since the proper interpretation of archeological remains is a matter that has been found to require the greatest caution and the most extensive knowledge.

MAURITIUS—METEOROLOGY AND CROPS.

We note that the annual report for 1895 of the Royal Alfred Observatory, on the Island of Mauritius, comes to us with the signature of F. F. Claxton, assistant in charge of the Observatory, he having been appointed first assistant at the close of the year and entering on his duties on February 10, 1896. Since that date Mr. Claxton, who was formerly an assistant at Greenwich Observatory, has been appointed to the position of director, succeeding Meldrum, whose life work has made this Observatory so famous. In this annual report, for 1895, Mr. Claxton gives a table showing the mean annual rainfall for four stations on the Island as compared with the total crop of sugar for the corresponding calendar year, from 1880 to 1895, which we reproduce in the following table, except only that we have rearranged the figures in the order of the annual rainfall:

Rainfall.	Sugar crops.	Year.
Inches.	*Kilograms.*	
42.52	102,376,271	1886
54.35	119,731,492	1880
59.27	127,784,339	1884
59.86	115,299,039	1885
62.84	139,751,810	1893
66.52	117,809,610	1881
68.11	113,795,319	1894
69.40	124,073,140	1887
70.59	130,220,273	1890
72.10	135,564,900	1895
75.67	120,396,358	1883
76.13	68,718,573	1892
78.28	113,813,075	1891
91.71	124,564,951	1889
98.35	116,719,997	1882
106.23	132,172,988	1888

If we divide this series of figures into three groups of five each, omitting the year 1892, when a disastrous hurricane occurred on the 29th of April, we obtain the following averages which give us some idea as to the importance of the

Five year averages.

Rainfall.	Sugar crop.	Date.
55.76	120,968,590	1885.6
69.34	124,292,648	1889.4
90.05	121,533,574	1886.6

annual quantity of rainfall. These averages, as will be seen by the dates of the average crop year, partially eliminate any progressive change in the area devoted to the sugar crop, the style of agriculture, or any other slow change that is going on, and we may infer that the increase of annual rainfall from 55 to 90 inches has had approximately no effect in increasing the total crop. But this must not be misunderstood as implying that rainfall has nothing to do with crop production. The fact is that the sugar cane requires about eighteen months for ripening from the time of planting. A field that is planted in September will be gathered in June of the second following year. The crop then gathered must be compared with the rainfall during those eighteen months, and, more especially, during the middle portion of that interval. It is evident, therefore, that the comparison which we have been able to make, as suggested by Mr. Claxton's figures, is not a fair one, and that the subject must be pursued with more detail, very much as was done by Rawson and Walcott in their studies upon the sugar crop of Barbadoes.

A similar remark must be made with regard to the majority of the compilations of statistics that have been made by those who would elucidate the relation between climates and crops. The rainfall, temperature, humidity, sunshine, and the condition of the soil must be discussed separately for the four divisions of the plant's life. The matter is too complex to be treated by means of crude statistics without an intellectual perception of the laws of plant growth.

As the drought of 1896 in Mauritius was but one item in the destructive drought that prevailed all over the South Pacific, as well as over parts of the Northern Hemisphere, the Editor reserves his discussion of that important subject for the next REVIEW.

PRACTICAL SCIENCE IN GERMANY.

In the MONTHLY WEATHER REVIEW for April, 1895, Vol. XXIII, p. 131, we have dwelt upon the importance to the farmer, and for that matter to the whole country, of the establishment of some Government office—a bureau where the useful efficiency and relative value of machines for agricultural purposes may be thoroughly and officially determined—analogous to the Bureau of Weights and Measures and the offices for testing seeds, investigating fibres, testing the strength of woods, extirpating dangerous diseases, etc.

Somewhat analogous to these latter various bureaus that have from time to time been established in the United States, is the one central institution that has been founded in Germany under the name of the Physical-Technical Institute, which is located at Charlottenburg (formerly a suburb but now included as a part of the city of Berlin), the province of which is to carry out scientific investigations and practical tests that are beyond the reach of the ordinary laboratory, and that are of fundamental or general importance to the whole country.

The following is an abstract of a report prepared by the United States Consul-General at Frankfort, Germany, Frank H. Mason, and published in the number for July, 1897, of the Consular Reports of our State Department:

From the series of expert investigations that have been made during the past two years by English economists and commissions to ascertain the underlying causes of Germany's rapid and ominous advance as a manufacturing nation, one definite conclusion has been convincingly drawn. This is, that, putting aside all questions of protective duties, comparative wages, supply of native materials, etc., Germany, as an industrial nation, enjoys in two respects distinct advantages over Great Britain and every other European country. These are, first, the wide diffusion and high standard of technical and industrial education provided in this country; and second, the liberal and intelligent support that is given by the imperial and various state governments to the development of theoretical science and the higher and more scientific forms of industrial enterprise.

In support of the latter of these propositions, and as an illustration of how far a moderate expenditure of money, under Government authority, can be made to reach in the advancement of scientific investigation and the promotion of engineering and kindred enterprises, the Imperial Physical-Technical Institute at Charlottenburg, Berlin, is cited as the highest existing example of its class, and a model for the study and imitation of other governments which are seeking, as Germany has done since 1856, to prepare and equip their people for the industrial struggles of the future.

The introduction into Congress of a measure like the Hale engineering experiment station bill is a sign that in our own country the need of Government aid in this direction is recognized, and the following brief account of the plan and functions of the great parent institution at Charlottenburg is submitted as a contribution to a movement that has been already initiated.

The Physikalisch-Technische Reichsanstalt, to use its German official designation, was founded in 1887, mainly through the influence of the eminent electrician Werner von Siemens, who gave for the purchase of the site of the institute 500,000 marks ($119,000). The first president of the institution was the renowned physicist, Prof. Hermann L. F. von Helmholtz, who, since his death in 1895, has been succeeded by Prof. Dr. Friedrich Kohlrausch.

The institution comprises two sections, as follows: The physical department, which has for its field the advancement of pure science, or, in the language of Professor Helmholtz, "the prosecution of scientific